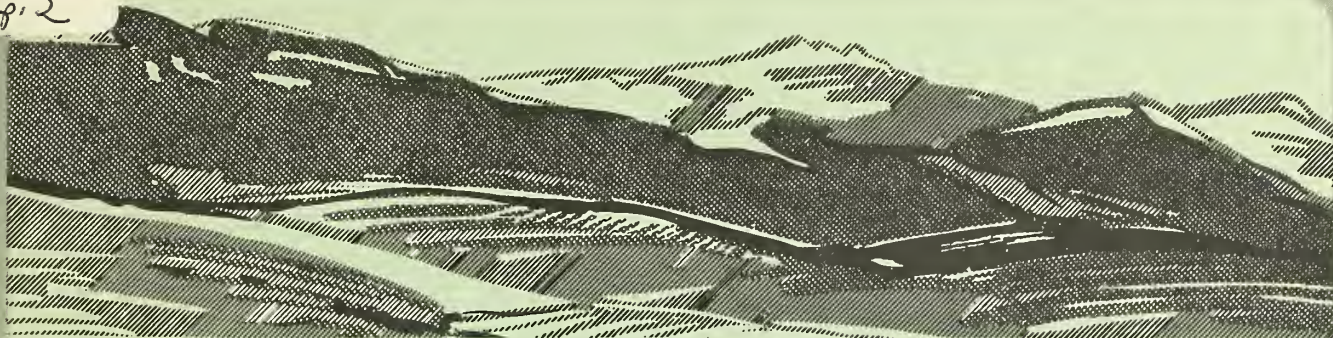


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FOREST SERVICE — U. S. DEPARTMENT OF AGRICULTURE
INTERMOUNTAIN REGION — OGDEN, UTAH

STATEMENT OF PURPOSE

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This publication is printed primarily to inform professional range administrators of important range improvement and management developments and findings. These "NOTES" may include extracts of published papers, unpublished preliminary reports of research work, unpublished reports on administrative studies and personal observations or suggestions of other range administrators. No claim is made as to the accuracy or completeness of studies or conclusions drawn.

All who read these RANGE IMPROVEMENT NOTES are encouraged to submit material for publication, or suggestions for improving its usefulness. Full credit will be given for any material used.

GONE WITH THE SAGE

By
Joel Peterson*

A race of people once lived on an isolated island somewhere in the Pacific Ocean. The land was extremely fertile, providing the essentials of life. Their mainstay consisted of cattle and grain crops for food, while trees provided the wood needed to make shelter.

One day the island began to sink into the ocean, causing an onslaught of water which covered trees, grass and croplands. The island's people were forced to move to the high and barren mountains. Here, there was little or no food or shelter and no grass for their cattle. Eventually they perished.

So, too often, is the fate of wildlife. Their demise may not always be as dramatic and may occur almost unnoticeably slow. However, it happens, and is often either directly or indirectly the result of land use, and often unavoidable. Land once used almost exclusively for food and cover by wild animals is now used to provide food and shelter for man. The demand for products of the land (food crops, lumber, hay, beef, metals, etc.) can only increase as the human population increases. As a result, wildlife will suffer.

Sage grouse, as other wild birds and animals, have specific physical requirements. Basic to these grouse is the sagebrush-grassland type of habitat. Sage grouse use sagebrush for escape, roosting, loafing, brooding, and nesting cover. They are seldom found far from these plants. During the fall, winter, and spring, sagebrush leaves provide the bulk of the diet for sage grouse. Even during the summer, when forbs (weedy plants) and insects are utilized to varying degrees, adult sage grouse still feed on sagebrush seed heads and leaves. Healthy stands of sagebrush are a must during periods of deep snow.

So it is with the sage grouse of Meagher County where they inhabit a 5,000-foot high valley between several mountain ranges. The sagebrush grassland area in this report pertains to this area in Meagher County around White Sulphur Springs, Montana. Information was gained from an intensive study conducted southwest of that town.

The shaded area in Fig. 1 indicates the approximate distribution of sagebrush in the study area prior to any land breakup, probably around 1915 (approximately 24,500 acres in sagebrush). At that time settlement began and the first sagebrush was probably plowed or burned to create fields for a grain or hay crop.

*Wildlife Biologist - Montana Fish & Game Department.

Between 1915 and 1941, the hunting season for sage grouse in Meagher County was periodically opened or closed each year during which times a bag limit of 1 to 5 birds was allowed. From 1942 to 1957, there was no open season on sage grouse in Meagher County.

Long-time residents to this area often relate to past times when sage grouse were considered plentiful. A study by the Fish and Game Department in 1942 rated sage grouse from common to abundant in Meagher County. However, it was felt at that time that a season would seriously affect sage grouse populations in the "restricted" habitat area found there. This view was apparently shared by local landowners. It was also noted in the 1940's that sagebrush eradication was being accelerated by the use of heavy equipment--tractor and plow capable of turning 20 acres of sagebrush per day.

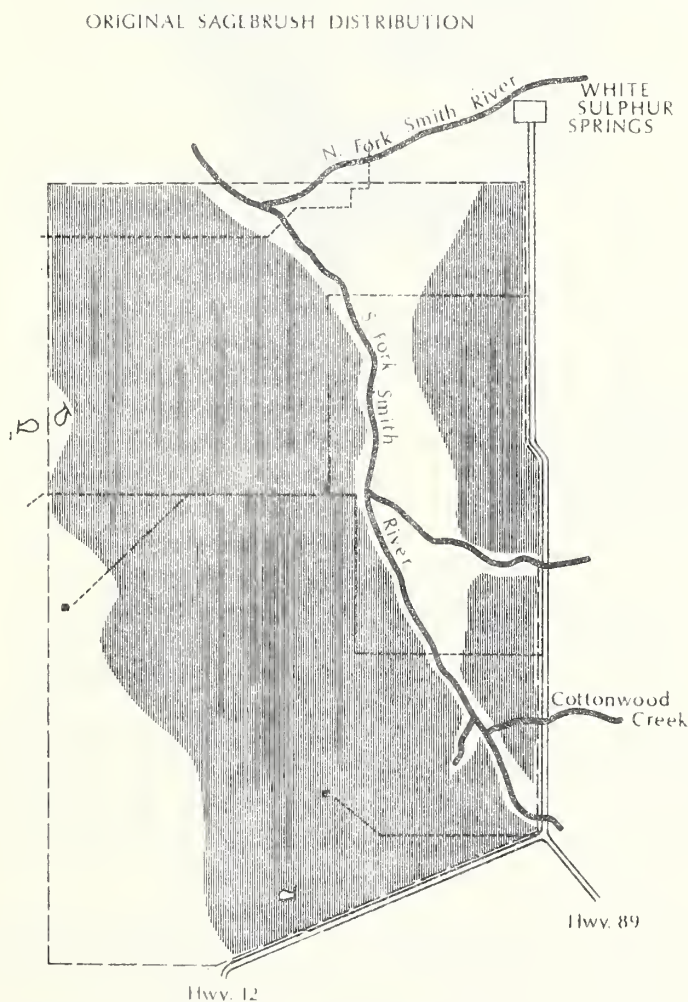
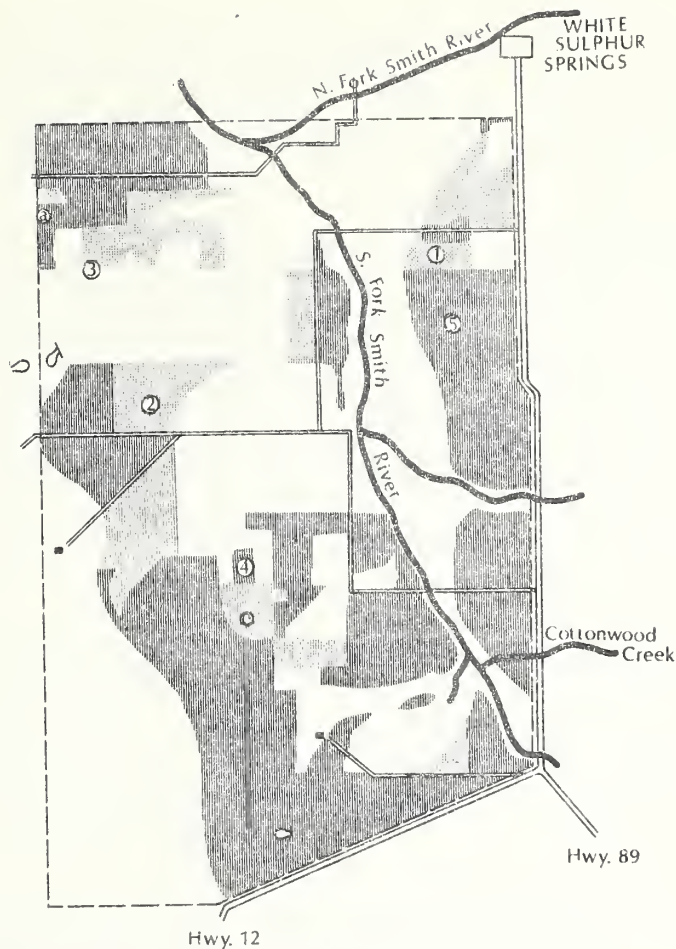


Figure 1. Original sagebrush diistribution in the study area.



SAGE PRESENT

1955



1970



STRUTTING GROUNDS

Striped and dotted areas show sagebrush areas during 1955. Dotted areas represent sagebrush eradicated from 1955 to 1970.

Because sagebrush eradication was at first gradual, people apparently did not notice any great changes in the land. However, by 1955, approximately 7,508 acres, or 31 percent of the original stand of sagebrush within the study area had been converted to cropland or hay meadows.

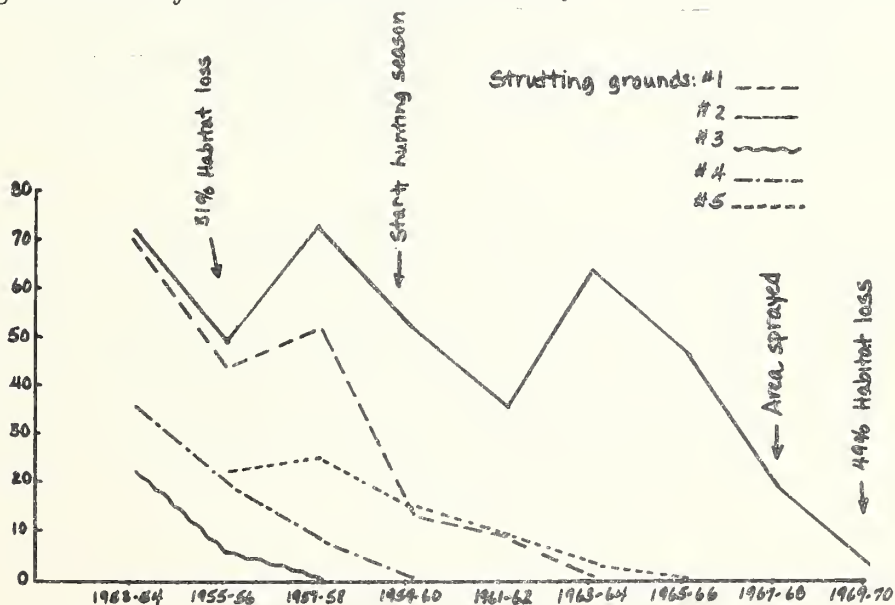
Each spring, male sage grouse assemble on certain areas to display in courtship during the mating period. These areas, called strutting grounds, are used year after year and are censused to aid in determining yearly trends of sage grouse populations. Four of these strutting grounds have been censused since 1953 and one since 1955 in the study area.

The steady trend of sagebrush eradication prior to 1956 which destroyed 31 percent of the original sage grouse habitat in the study area is coincidental with a decline of the sage grouse population in the study area. This was reflected by strutting ground trend counts during a period when hunting was not allowed.

Strutting grounds No. 3 and No. 4, which were both first censused in 1953 and revealed 34 and 46 males respectively, were all but abandoned by 1958. No males displayed on ground No. 3, and only 3 displayed on ground No. 4. There had not been hunting seasons there for 16 years. In 1958 a hunting season was finally opened for sage grouse in Meagher County. It has since varied from 2 through 8 days and a bag limit of 3 birds. Two new strutting grounds indicate movement from No. 3 and No. 4 to areas surrounded by more sagebrush. This would indicate a dependency by these birds to be close to a good source of sagebrush cover during their mating activities.

A road census count along an established route through the study area from 1948 to 1952, showed a decrease from 6 birds per mile in 1948 to 3.6 birds per mile in 1952. Although natural fluctuations occur in bird populations each year due to the success of the hatch and other factors, the general trend here is again downward during a period when no hunting was allowed and habitat was being lost.

There were 116 fewer males present on the 5 strutting grounds in 1958 than when these areas were first censused five years earlier. During the next five years after hunting season opened, the count dropped by 79 males. This further indicates the downward trend in the sage grouse population, but does not lend support to the contention by some that hunting is directly the cause of this trend.



From 1955 to 1970, an additional 4,300 acres of sagebrush, approximately, were eradicated or treated with chemicals. This was 18 percent of the original stand of sage in the study area or 25 percent of the sage standing since 1955. This means that 49 percent of the original sagebrush has been altered. In other words, nearly one-half of the original sage grouse habitat in the study area has been destroyed.

During most of this period, use of strutting ground No. 2 (71 males in 1954 and 66 in 1964) remained at a fairly high level, even in the face of a hunting season. However, in 1967 the acreage in and around that area was treated with 2,4-D to kill the sagebrush. In the spring of 1968, only 17 males were observed, and in 1970 there were only 3. This area had become practically isolated from the surrounding sagebrush since 1955, and the spray treatment appears to have all but put this strutting ground out of existence.

Ground No. 1 has also decreased since first counted in 1953. There were 79 males on that ground the first spring, but only 36 three years later. The big drop was suffered from 1958 to 1960 following the first hunting season in years (52 males in 1958 to 8 in 1960). Though one may be inclined to attribute the drop to hunting, it should be noted that there was an almost identical drop prior to 1957. Ground No. 5 suffered similar fate as the rest, with the last male being observed there in the spring of 1964.

Past studies have revealed that hunting normally takes only a small percentage of the surplus game birds produced each year. This surplus is an annual crop which is lost if not harvested. Those who have hunted in this area should be thankful that they had the chance. Those who advocate closing the season to allow the sage grouse to increase might stop and think for a moment--if a hunting season were not allowed here since 1915, do you think the birds would have increased or even remained static when approximately 50 percent of their habitat has been destroyed. One might ask himself this same question when he visits his favorite grouse hunting area this fall.

The plight of the sage grouse in this area is typical of our game bird populations found in much of the State. Land development, clean farming, intense grazing, pesticides, etc., have all contributed to lower the quality of our land for wildlife. Montana has lost in the past, and will continue to lose wildlife habitat. If there are to be game birds and animals for the enjoyment of future generations, those segments of the environment which are so vital to their survival must be protected now.

* * * * *

No one was ever honored for what he received;
HONOR is the reward for what he gave.

COW COUNTRY - Oct. 1967

RESEEDING AND LABOPS

By

Frank Jensen*

The black grass bug Labops hesperius now inhabits practically all of the reseeded rangelands on the Dixie National Forest. Populations vary from only a few to several hundred per square yard. Labops became of concern on the Forest about six years ago when damage was noted on reseeding.

Approximately 100,000 acres have been reseeded on the Forest to date. They are highly successful and provide sizable amounts of forage for livestock and wildlife. Labops are doing severe damage on approximately 5,000 acres (5 percent) of the total area reseeded.

Two postulations have been proposed as to the origin of Labops on the Dixie National Forest. These are:

1. They migrated from Arizona to southern Utah and are continuing northward.
2. They are a native insect and the large reseeding have created suitable habitat for their increase.

Labops first appear in the crown of the grass plant in May. As the days become warm and the plant grows, the bugs move onto the leaves and feed by extracting chlorophyll, leaving the leaves brown as they normally are in fall. As the days get hot in late June and early July, the bugs disappear, supposedly having laid their eggs and completed their life cycle.

If summer rains come, the grass plant will again green up. As yet, grass plants have not been observed that have been killed by Labops. The most significant loss so far has been the reduction of forage produced.

Severely damaging populations of Labops have been observed only on areas that have been plowed (or otherwise severely disturbed) and seeded with introduced cool season grasses. Most of these seedings involve crested wheatgrass, although intermediate wheatgrass and smooth brome are equally susceptible. Great Basin wildrye in pure stands seems to host a higher concentration of Labops than any other native grass. Labops do not appear to infest the warm season native grasses, such as gramma and galleta.

*Chief, Branch of Range Management, Dixie National Forest.

TYPICAL RESEEDINGS

The following photographs show typical reseedings. The same conditions exist on many sites on the Forest.



Figure 1 - Richie Flat - Enterprise District - Dixie National Forest.

Approximately 15 years ago the area in the foreground was plowed and seeded to crested wheatgrass, creating a monoculture. It is heavily infested with Labops. The area in the background was also reseeded but the site was prepared by cabling and pushing over pinyon-juniper trees. (See Figure 2.)



Figure 2 - This area was cabled to uproot pinyon-juniper trees and seeded with crested wheatgrass approximately 15 years ago. The crested wheatgrass still grows vigorously in a plant community composed of many species including sagebrush, rabbitbrush, bitterbrush, serviceberry, galleta, western wheatgrass and bluegrass. Labops exist on the site, but only in limited numbers.

The plowed area has deep, stone free soils. The cabled area has shallower, stony soils. Before the Labops infestations, the plowed area probably produced more pounds of grass forage per acre than the cabled site. However, with the Labops infestation it doesn't. In addition, the cabled site with its mixture of browse and native grass provides a much wider base for multiple use management.

Controls

Several unanswered questions face the Forest in relation to Labops. They are:

1. What will be the long-term effect of the infestation?
2. Will the pure stands of grass that are heavily infested survive?
3. Should pesticides be used for control?

On the latter item there is some information available for guidance, as approximately 5,000 acres were sprayed with malathion in the spring of 1968 on the East Fork Sevier River drainage. The treatment controlled the Labops for that season, but they have reinfested the area. Therefore, if chemical control is used, it may have to be done yearly or at least every few years.

It is well to note that chemical control, especially on a continuing basis, may eliminate natural predators of the Labops. Thus, over a period of time the ecosystem may be further upset. With the large acreage involved and public concern about the environment, a better means of control than pesticides must be sought.

It has been noted that in moist springs when forage growth is abundant there are many times more Labops than dry springs when forage growth is limited. Since the spring of 1970 was extremely dry, Labops populations were low. How this will affect the populations during the next few years remains to be seen.

It appears that the best insurance against heavy Labops infestations is a balanced plant community.

Recommendations for Future Reseedings

Approximately 90,000 acres of potentially productive rangeland remains to be reseeded on the Dixie National Forest. A diversified plant community should be the goal on these reseedings. Revegetation methods should be used that will perpetuate desirable native grass and browse (including sagebrush) species. These methods include chaining, cabling, and harrowing. Plowing or other methods that kill practically all of the native plants should be questioned.

* * * * *

Never be too sure of your SAFETY ! ! !

